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ANACONDA Aluminum Division

Internal Correspondence

Mr. D. W. Everett JUN 15 1981

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ANACONDA Industries

Date: June 11, 1981

Subject: SUMITOMO VISITATION

file 1.1.2

From/Location: T. F. Payne

To/Location: C. E. Fisher

Gil Kaufman

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J. G. KAUFMAN

Mr. M. Minamiura from Sumitomo visited the Plant May 26 and 27, 1981. Some notes from the discussion follow.

SUMITOMO TECHNOLOGY SALES: They have sold parts, or all of their technology, to 13 companies at 18 locations:

Alcan - Kitimat, Canada

Canadian Reynolds - Baie Comeau, Canada

Anaconda - Columbia Falls, Montana

Martin Marietta - The Dalles, Oregon
Goldendale, Washington

Alcoa - Point Comfort, Texas
Surinam Plant, Surinam

Alcan International - Brazil

Endasa - Aviles, Spain
Volladolid, Spain

ASV - Arrdal, Norway
Hoyanger, Norway
Sunndalsora, Norway

Norsk Hydro - Karmoy, Norway

Mosal - Norway

Pechiney - Nogueres, France

Mitsubishi - Japan

Showi - Japan

CURTAILMENT PROCEDURE: Sumitomo follows a similar procedure to ours for curtailment:

Shutdown

*No pin-pulling 48 hours prior.

*Take anode current distribution prior to cut-out to identify problem restarts.

*Tap 30-40% of metal (3-4 tons).

*Cells on anode effect only to clear muck.

*Stop fluoride additions.

Restarts

*Clean anode face.

*Use shunts - 24 to 48 hours.

*Add about 3 tons of metal.

*Emissions will be about 5 times a normal pot for 24-48 hours. Probably 2-3 pots per day could be restarted and keep emissions within standards.

*Five to six days of warm-up to cut-in.

ANODE OPERATION: Sumitomo Aluminum Smelting (SAS) plants achieve 430 mv anode drop with 8 inch zero, 14-day cycle and cleaned pins. Mr. Minamiura sees no reason that we could not approach this level, perhaps 450 mv. To do this, we should:

*Maintain good pin shape. Presently is okay.

*Clean pins.

*Lower zero height to 8" (cautiously!).

*Improve reset accuracy (-1", +4") to 90%.

*Lower bus-to-riser drop to 10 mv.

As we lower our anode drop below 500 mv, we will have to consider insulation. This can be done "on the fly" with fiberglass and later done properly at rebuild.

I had him inspect the ARCO test anodes. He suggested running these anodes slightly on the wet side, due to the extra fines content. He felt anode top condition across the Plant on non-ARCO pots was very good.

GENERAL OPERATIONS: Our chemical consumption is now comparable to Sumitomo's. The following data is based on 5-6 year pot life and Na_2O in ore of 0.5-0.6%.

	SUMITOMO NAGOYA DATA	ANACONDA 1981 TO-DATE
AlF_3, purchased lb/lb Al	0.036	0.024
Cryolite, purchased lb/lb Al	-0-①	0.007
Extra cryolite generated for resale lb/lb Al	0.008①	-0-
Net consumption of fluoride calculated at 90% purity of chemicals.	0.018	0.018

①Sumitomo has cryolite recovery systems on their primary gas collection systems.

The bowing of our cathode sides is probably due to weak cradle beams. If we could develop a stronger design, we would likely see an increase in pot life. They have seen an 8-year average pot life with SK cathodes at Toyama.

Not only would pin-cleaning reduce anode drop, but would significantly improve metal purity. A reduction by 0.05 - 0.08 (or more) % Fe is possible.

Present ratio is acceptable, although we could probably go as low as 1.20. Increased muck and increased AlF_3 consumption are the limiting factors. We probably should stay put through the summer, both on amperage and ratio.

Mr. Minimiura commented that our plant looked the best it's ever looked. He stated environmentally, this is the best VSS plant in the Western World.

He suggested that we stay with sandy ore as much as possible. He felt that sandy ore gives 30% lower fluoride emissions over floury alumina.

TECHNOLOGY: SAS is developing a VSS cathode that operates at energy figures approaching 6 DCKwhr/lb. The design uses magnetics compensation and is highly insulated. Though in the development stage, it may be possible to retrofit a pot such as the Columbia Falls cell.

Mr. Minamiura does not recommend our renegotiating a technology exchange agreement with SAS at this time. Our present agreement expires this fall, but the

confidentiality clause extends another 5 years. He would prefer a situation much like we have now - a gentlemen's agreement. If they have further improvements to sell, they will contact us. In the meantime, the good operations of our plant is very beneficial to both Anaconda and SAS.

Tom Payne

T. F. Payne

TFP/bam

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